

WHAT IS CLAIMED IS:

1. An adaptive wireless transmitting/receiving apparatus comprising:
 - a modulation and coding scheme (MCS) setting unit for periodically checking a state information of a receiving channel and setting an optimum modulation and coding scheme (MCS) level;
 - a transmitting unit for processing information bits according to a coding technique and a modulation technique of the set MCS level, and transmitting the processed signal according to a predetermined transmit diversity (TD) technique; and
 - a receiving unit for processing a received signal according to the MCS and TD technique, which have been set by the transmitting side.

2. The system of claim 1, wherein the transmitting unit comprises:
 - a first encoding unit for coding the information bits according to the set coding technique;
 - a modulation unit for interleaving and modulating the coded signal according to the set modulation technique; and
 - a second encoding unit for coding the modulation signal and transmitting the coded signal through a plurality of transmission antennas according to a predetermined transmit diversity (TD) technique.

3. The system of claim 2, wherein the modulation unit comprises:
 - a channel-interleaving unit for interleaving the coded signal according to the set modulation technique;
 - a mapping unit for constellation-mapping an output signal of the channel-interleaving unit according to the set modulation technique;

a Walsh modulation unit for converting the mapped signal into a Walsh code block; and

a scrambling unit for scrambling the converted signal.

4. The system of claim 1, wherein the predetermined transmit diversity technique is a space time transmit diversity (STTD).

5. The system of claim 4, wherein the MCS setting unit sets an optimum MCS for every receiving channel.

6. The system of claim 1, wherein the predetermined transmit diversity technique is a selecting transmit diversity (STD).

7. The system of claim 1, wherein the receiving unit comprises:
a first decoding unit for decoding a diversity signal collected by a reception antenna according to a predetermined TD technique and performing a channel compensation;

a demodulation unit for demodulating an output signal of the first decoding unit; and

a second decoding unit for map-decoding the demodulated signal to restore the original information bits.

8. The system of claim 7, wherein the demodulation unit comprises:
a descrambling unit for descrambling an output signal of the first decoding unit;

a Walsh demodulation unit for demodulating the descrambled signal;

a soft determining unit for determining which symbol region the demodulated signal belongs to; and

a channel deinterleaving unit for deinterleaving an output signal of the soft determining unit.

9. The system of claim 7, wherein the demodulation unit is operated corresponding to a modulation unit of a transmitting side.

10. The system of claim 7, wherein the second decoding unit is operated corresponding to a first encoding unit of the transmitting side.

11. The system of claim 1, wherein the MCS setting unit comprises:

a channel information extracting unit for periodically extracting channel state information from the first decoding unit; and

a selecting unit for selecting an optimum MCS with reference to the extracted channel state information.

12. The system of claim 11, wherein the selecting unit provides information on the selected MCS to the first encoding unit and to the modulation unit.

13. The system of claim 11, wherein the channel state information is about an SN (Signal to Noise) ratio of a channel.

14. An adaptive wireless transmitting/receiving method comprising:

a modulated and coding scheme (MCS) setting step of periodically checking state information of a receiving channel and setting an optimum MCS level;

a transmitting step of processing information bits according to a coding technique and a modulation technique of the set MCS and transmitting the processed signal according to a predetermined transmit diversity (TD) technique; and

a receiving step of processing a received signal and restoring original information bits according to the MSC and TD technique set by a transmitting side.

15. The method of claim 14, wherein the transmitting step comprises:
coding information bits according to the set coding technique;
interleaving and modulating the coded signal according to a set modulation technique; and
coding the modulated signal and transmitting the coded signal to a plurality of transmission antennas.

16. The method of claim 15, wherein the modulation step comprises:
interleaving the coded signal according to the set modulation technique;
constellation-mapping the interleaved signal according to the set modulation technique;
converting the mapped signal to a Walsh code block; and
scrambling the converted signal.

17. The method of claim 14, wherein the predetermined transmit diversity technique is a space time transmit diversity (STTD).

18. The method of claim 14, wherein the predetermined transmit diversity technique is a selecting transmit diversity (STD).

19. The method of claim 14, wherein the receiving step comprises:
 - decoding a diversity signal collected by a reception antenna according to a predetermined transmit diversity (TD) technique and performing a channel compensation on the decoded signal;
 - demodulating the compensated signal; and
 - map-decoding the demodulated signal to restore original information bits.
20. The method of claim 19, wherein the demodulation step comprises:
 - descrambling the compensated signal;
 - demodulating the descrambled signal;
 - determining which symbol region the demodulated signal belongs to; and
 - deinterleaving the determined signal.
21. The method of claim 19, wherein the demodulation step is performed corresponding to a modulation technique of a transmitting side.
22. The method of claim 19, wherein the map decoding is performed corresponding to a coding technique of the transmitting side.
23. The method of claim 14, wherein the channel state information is about an SN (Signal to Noise) ratio of a channel.